



Ural Regional School Programming Contest 2010

1796 Amusement Park

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Description

On a sunny Sunday, a group of children headed by their teacher came to an amusement park. Aunt Frosya, who was a very kind and quiet person, worked at the ticket window on that day. The teacher gave her the money but didn't say how many tickets she wanted to buy.

Could Aunt Frosya determine it knowing only the numbers of different notes the teacher gave?

It is assumed that the teacher didn't give extra notes, which means that there would not be enough money for the tickets if any of the notes was taken away.

Structure

Input

The **first** line contains six nonnegative integers separated with a space; these are the numbers of 10, 50, 100, 500, 1000, and 5000 rouble notes the teacher gave to Aunt Frosya.

In the **second** line you are given the price of one ticket; it is a positive integer. All the integers in the input data do not exceed 1000.

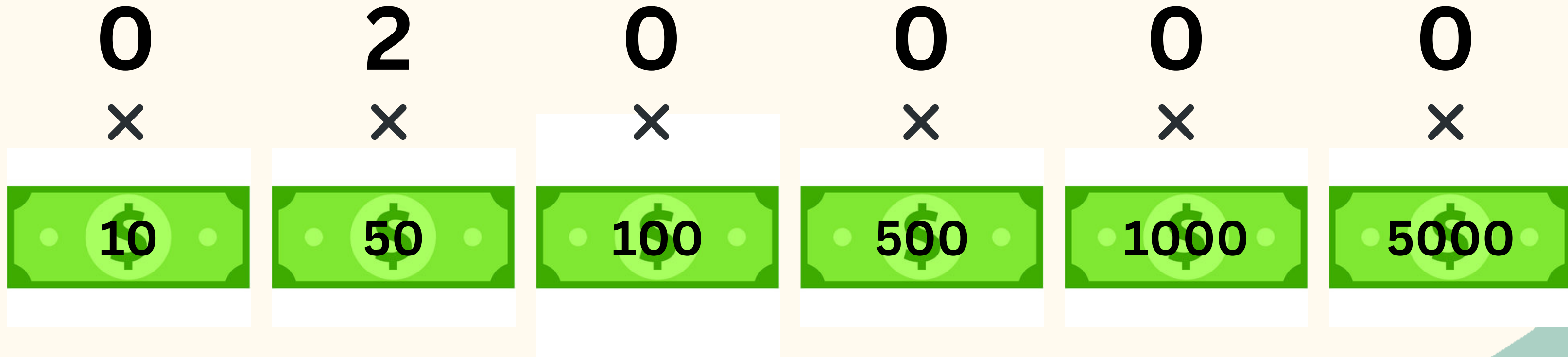
Output

Find the number of tickets the teacher wanted to buy. Output the number of possible answers in the **first** line. Output the variants in ascending order separated with a space in the **second** line. It is guaranteed that there is at least one variant of the answer.

Input	Output
0 2 0 0 0 0 10	5 6 7 8 9 10
1 2 0 0 0 0 10	1 11

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Input	Output
0 2 0 0 0 0 10	5 6 7 8 9 10





Analysis

Description

On a sunny Sunday, a group of children headed by their teacher came to an amusement park. Aunt Frosya, who was a very kind and quiet person, worked at the ticket window on that day. The teacher gave her the money but didn't say how many tickets she wanted to buy.

Could Aunt Frosya determine it knowing only the numbers of different notes the teacher gave?

It is assumed that the teacher didn't give extra notes, which means that there would not be enough money for the tickets if any of the notes was taken away.

Steps

1

Calculate the maximum amount of tickets that the teacher can purchase.

```
0 2 0 0 0 0  
10
```

ticket price: 10
total money: 100
maximum tickets: 10

2

Calculate the minimum amount of tickets.

```
0 1 0 0 0 0  
10
```

ticket price: 10
minimum money: 60
minimum tickets: 6

3

Voila. Output the number of possible answers in the first line and the variants in the second line.

```
5  
6 7 8 9 10
```

possible answers: 5
variants: 6 7 8 9 10



Implementation

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```
1
2 array1 = list(map(int, input().split()))
3 array2 = array1.copy() # deep copy
4 n = int(input()) # ticket price
5
6
7 # find the sum of money we get from first line
8 sum1 = array1[0]*10 + array1[1]*50 + array1[2]*100 + array1[3]*500 + array1[4]*1000 + array1[5]*5000
9 # find maximum by dividing by number of tickets
10 maximum = int(sum1/n)
11
12 # we minus 1 from the smallest given banknote
13 # e.g.
14 # 0 2 0 0 0 0 becomes
15 # 0 1 0 0 0 0
16 for i in range(len(array2)):
17     if(array2[i] != 0):
18         array2[i] = array2[i]-1
19         break
20 # find the sum of this new array
21 sum2 = array2[0]*10 + array2[1]*50 + array2[2]*100 + array2[3]*500 + array2[4]*1000 + array2[5]*5000
22 # divide it by number of tickets to find the minimum
23 minimum = int(sum2/n)
24
25 # find the number of possible answers by max - min
26 output1 = maximum - minimum
27 print(output1)
28
29 # print out all variants by going through min to max
30 for i in range(minimum + 1, maximum + 1):
31     print(i, end=" ")
32
```

References

01

1796. Amusement Park

Timus Online Judge

<https://acm.timus.ru/problem.aspx?space=1&num=1796>

02

A_soul

<https://vjudge.net/status/#un=&OJId=URAL&probNum=1796&res=1&language=&onlyFollowee=false>



Thank you!

Have a nice day!